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BOX NON-FEE AMENDMENT
Assistant Commissioner of Patents
Washington, D.C. 20231



November 7, 2000

RECEIVED
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TC 2700 MAIL ROOM

Re: U.S. Patent Application No.: 09/574,352
Filing Date: May 20, 2000
Entitled: **CONFIGURABLE FAULT RECOVERY POLICY FOR A COMPUTER SYSTEM**
Attorney Docket No: 102689-5 / 00-U0003

Dear Sir:

Transmitted herewith for filing are the following documents:

1. Preliminary Amendment;
2. Nine (9) pages of amended informal drawings;
3. Two (2) pages of Specification; and
4. Return Postcard.

The Assistant Commissioner is hereby authorized to charge payment of any fees which may be associated with this communication to Deposit Account No. 141449.

Certificate of Mailing (37 C.F.R. 1.8(a))

I hereby certify that this correspondence is being deposited with the United States Postal Service Post Office as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on the date set forth below.

Nov. 7, 2000

Date of Signature and Mail Deposit

Lisa J. Michaud
Reg. No. 44,238

Respectfully Submitted,

Lisa J. Michaud

LJM/jan
Enclosures
923275.1

1 Once all the line cards are executing the appropriate MKI, slave MCDs 39a-39n and
2 slave SRMs 37a-37n on each line card need to download device driver software
3 corresponding to the particular devices on each card. Referring to Fig. 8, slave MCDs
39a-39n search PMD file 48 in memory 40 on central processor 12 for a match with
5 their line card type and version number. Just as the master MCD 36 found the name
of the MKI executable file for each line card in the PMD file, each slave MCD 39a-
39n reads the PMD file to learn the names of all the device driver executable files
associated with each line card type and version. The slave MCDs provide these
names to the slave SRMs on their boards. Slave SRMs 37a-37n then download and
10 execute the device driver executable files (DD.exe) 56a-56n from memory 40. As
one example, one port device driver 43a-43d may be started for each port 44a-44d on
line card 16a. The port driver and port are linked together through the assigned port
PID number.

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15 In order to understand the significance of the PMD file (i.e., metadata), note that the
MCD software does not have knowledge of board types built into it. Instead, the
MCD parameterizes its operations on a particular board by looking up the card type
and version number in the PMD file and acting accordingly. Consequently, the MCD
software does not need to be modified, rebuilt, tested and distributed with new
20 hardware. The changes required in the software system infrastructure to support new
hardware are simpler modify logical model 280 (Fig. 3) to include: a new entry in the
PMD file (or a new PMD file) and, where necessary, new device drivers and
applications. Because the MCD software, which resides in the kernel, will not need to
be modified, the new applications and device drivers and the new DDL files
25 (reflecting the new PMD file) for the configuration database and NMS database are
downloaded and upgraded (as described below) without re-booting the computer
system.

28

29 Network Management System (NMS):

Referring to Fig. 9, a user of computer system 10 works with network management
system (NMS) software 60 to configure computer system 10. In the embodiment
32 described below, NMS 60 runs on a personal computer or workstation 62 and
33 communicates with central processor 12 over Ethernet network 62⁴¹ (out-of-band).

1 Instead, the NMS may communicate with central processor 12 over data path 34 (Fig.
2 1, in-band). Alternatively (or in addition as a back-up communication port), a user
3 may communicate with computer system 10 through a terminal connected to a serial
4 line 66 connecting to the data or control path using a command line interface (CLI)
5 protocol. Instead, NMS 60 could run directly on computer system 10 provided
6 computer system 10 has an input mechanism for the user.

7

8 NMS 60 establishes an NMS database 61 on work station 62 using a DDL file
9 corresponding to the NMS database and downloaded from persistent storage 21 in
10 computer system 10. The NMS database mirrors the configuration database through
11 an active query feature (described below). In one embodiment, the NMS database is
12 an Oracle database from Oracle Corporation in Boston, Massachusetts. The NMS and
13 central processor 12 pass control and data over Ethernet³² using, for example, the
Java Database Connectivity (JDBC) protocol. Use of the JDBC protocol allows the
NMS to communicate with the configuration database in the same manner that it
communicates with its own internal storage mechanisms, including the NMS
database. Changes made to the configuration database are passed to the NMS
database to insure that both databases store the same data. This synchronization
process is much more efficient and timely than older methods that require the NMS to
periodically poll the network device to determine whether configuration changes have
been made. In these systems, NMS polling is unnecessary and wasteful if the
configuration has not been changed. Additionally, if a configuration change is made
through some other means, for example, a command line interface, and not through
the NMS, the NMS will not be updated until the next poll, and if the network device
crashes prior to the NMS poll, then the configuration change will be lost. In computer
system 10, however, command line interface changes made to configuration database
42 are passed immediately to the NMS database through the active query feature
ensuring that the NMS is immediately aware of any configuration changes.

Typically, work station 62 is coupled to many network computer systems, and NMS
60 is used to configure and manage each of these systems. In addition to configuring
each system, the NMS also interprets data gathered by each system relevant to each
system's network accounting data, statistics, and fault logging and presents this to the
user. Instead of having the NMS interpret each system's data in the same fashion,